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ABSTRACT

The Kaufman Brief Intelligence Test (K-BIT) is designed for use as a quick intelligence test for individuals aged 4 years through adulthood. The K-BIT measures both verbal and nonverbal intelligence, yielding Vocabulary, Matrices, and IQ composite scores. The test is easy to administer, and questions are scored objectively, making it easy for examiners who lack formal training in intelligence assessment to score the test. Data from the standardization sample and data in support of content, construct, and concurrent validity are all presented in the K-BIT manual. Because of the small sample size of the population aged 20 to 90 used in norming the test, it is recommended that scores for that population be interpreted cautiously. (SLD)

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A Review and Critique of the Kaufman Brief Intelligence Test

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General Information

Title: Kaufman Brief Intelligence Test (K-BIT)
Authors: Alan S. Kaufman and Nadeen L. Kaufman
Publisher: American Guidance Service, Inc.
Date of Publication: 1990
Date of Most Recent Norm Sample: March 1988 to October 1989
Time Required to Administer: 15 to 30 minutes (dependant upon age of subject)
Cost: (1999) K-BIT complete kit $124.95; 25 individual test records $26.95; Manual $37.95

Purpose and Nature of Test

The Kaufman Brief Intelligence Test (K-BIT) is designed for use as a quick intelligence test for individuals. The test is designed for use with subjects ages 4 through late adulthood. The K-BIT measures both verbal and non-verbal intelligence, and results in a Vocabulary, Matrices, and IQ composite score. All of the items within each subtest are arranged according to level of difficulty, from easiest to hardest.

The Vocabulary subtest of the K-BIT contains 82 items, and measures word knowledge and verbal concept formation through verbal responses. The Vocabulary subtest is made up of two parts, Expressive Vocabulary and Definitions. The Expressive Vocabulary section contains 45 questions and is administered first. This section is used with all ages of subjects. The section requires the subject to name the object shown on the easel (e.g., a leaf or a feather).

The Definitions section contains 37 questions and is administered second. This section is only used with subjects ages 8 and above. It requires subjects to give the word that fits the two clues provided, a phrase and a partially spelled word. A sample Definitions item follows:

place to learn

S _ H _ _ _

The Matrices subtest of the K-BIT contains 48 questions, and measures reasoning, simultaneous processing, and flexibility in applying a problem-solving strategy through non-verbal responses. This section is used with all ages of subjects, and is administered last. This subtest uses both meaningful (people and objects) and abstract (shapes and designs) visual stimuli. All of the questions are multiple choice and involve relationships between the stimuli presented. The subtest is non-verbal in that the subject may point to the correct response instead of saying its letter. The easiest questions involve the subject selecting one of five pictures that go best with the stimulus picture (e.g., a shoe goes with a *foot*, a carton of milk goes with a *glass*). Those questions use all meaningful stimuli. The next hardest questions also use meaningful stimuli, where the subject chooses one of six or eight pictures that best complete a 2 x 2 visual analogy (e.g., a baseball goes with a baseball cap just as a football goes with a *football helmet*). The remaining questions require the subject to solve either a 2 x 2 or 3 x 3 matrix or to complete a pattern of dots. These questions all involve abstract stimuli.

Practical Evaluation

The test booklet is a ring-bound notebook that folds out quickly and easily into an easel for presentation. The cover of the booklet is hard and brightly colored in red and turquoise. This hard cover, both in front and in back of the booklet makes the test booklet quite durable. The triangular easel format allows the test items to be visible to both the subject and the examiner, while the directions remain visible only to the examiner. The booklet is easy to use, with the instructions available both in the manual and on the booklet itself. Each page in the test booklet is accompanied by instructions for its use on the other side of the easel, so that the examiner can read the instructions while giving the test. The items are presented clearly, although some of the pictures in the Expressive Vocabulary section may be slightly out of date.

The test is designed to be easy to administer and it is. Both psychologists and non-psychologists, including teachers, may administer the K-BIT. The administration procedures are simple, and the questions are all scored objectively. Due to the objective scoring of the questions, examiners who lack formal training in intelligence assessment may score the test. At the present time, computer scoring of the K-BIT is unavailable. The manual reminds the examiner that variation from the administration instructions involving cues and prompts may result in invalid scores. The test itself appears to have high face validity for the children and adolescents being tested. However, the Expressive Vocabulary section may appear too easy to the adult subject. The manual provides both hints for establishing rapport as well as suggestions for maintaining rapport. There is extensive information about scoring the test in the manual. The scoring instructions are

easy to follow, and scoring takes about 15 to 20 minutes. The publisher states that results "must be interpreted by someone with in-depth training in standardized testing." (AGS, 1999)

Technical Evaluation

The Vocabulary, Matrices, and K-BIT IQ Composite are normalized standard scores with a mean of 100 and a standard deviation of 15. A representative sample of 2,022 subjects ages 4 to 92 years was tested at 60 sites nationwide between March 1988 and October 1989. The K-BIT standardization sample was selected using the most current Census data available. If the 1990 projections were not available for an area, the 1985 estimates were used. The subjects were drawn from the 48 contiguous United states. The sampling plan involved 1,750 subjects divided as follows: for ages 4 to 10, 100 subjects per each one-year interval; for ages 11 to 16, 150 subjects for each two-year interval; for ages 17 to 19, 150 subjects; for ages 20 to 34, 200; for ages 35 to 54, 150 subjects; for ages 55 to 90, 100 subjects. The target number was exceeded in every age group but one. The 55 to 90 age group was composed of the following numbers of subjects: 55-59 years, 27 subjects; 60 to 64 years, 21 subjects; 65 to 69 years, 24 subjects; 70 to 74 years, 19 subjects; 75 to 79 years, 12 subjects; 80 years and older, 12 subjects. It appears that the standardization sample was not representative by age groups in the population. For example, in the K-BIT, 40% of the sample was ages 4 to 10. In the U.S. Census (1990), that age range accounts for only 7% of the U.S. population. Similarly, the U.S. Census states approximately 25% of the population of the U.S. is between ages 35 to 54. However, that age range makes up only 9% of the K-BIT standardization sample.

The sample was also selected in accordance with U.S. Census data on the variables of gender, parental or personal educational level and ethnicity. The means and standard deviations of both the subtests and the K-BIT IQ Composite, by age, are presented in chart form in the Manual.

Split-half reliability coefficients are presented for the two subtests and for the K-BIT IQ Composite for the entire standardization sample. These coefficients were corrected using the Spearman-Brown Formula. The reliability coefficients ranged from .89 to .98 for the Vocabulary subtest, to .74 to .95 for the Matrices subtest. The reliability coefficients for the K-BIT IQ Composite ranged from .88 to .98, with reliabilities increasing with age.

Test-retest reliability was calculated on 232 children, adolescents, and adults who were tested approximately 21 days apart, with the range from 12 – 145 days apart. Test-retest reliability ranged from .80 to .97 with a median of .93. The Standard Errors of Measurement (SEM) were calculated for the two subtests and the Composite. Both the Vocabulary subtest and the K-BIT IQ Composite have an average SEM of 4 points across the age range. The Matrices have an average SEM of 5.5 points across the age range. Long-term stability data was not available.

Content, construct and concurrent validity are all discussed in the Validity section of the manual. In the content validity section, the authors state that their goal was to make the K-BIT correspond closely with other major IQ tests. For this reason, the authors selected the three sections of the test. Construct/concurrent validity was assessed in several studies comparing the K-BIT to the K-ABC, the WISC-R, and the WAIS-R. Among all of the studies, 249 subjects were assessed over ages 4 to 47. Three samples

totaling 150 subjects yielded correlation between the K-BIT and the K-ABC to range from .29 to .87, with a median of .54. Two other samples totaling 99 subjects yielded correlation between the K-BIT, the WISC-R, and the WAIS-R to range from .45 to .80, with a median of .63 for the WISC-R and .6 for the WAIS-R. Additional concurrent validity studies were conducted; one assessment for relationships with brief tests, and one for relationships with achievement tests. The brief tests used 336 subjects over ages 4 to 47, and the achievement tests used 397 subjects over ages 6 to 49. The assessment with brief tests compared the K-BIT to the TONI and the Slosson. The K-BIT IQ standard score correlated .23 with the TONI standard score, and correlated .44 with the Slosson IQ. The assessment with achievement tests compared the K-BIT with the K-TEA (brief), the K-TEA (Comprehensive), and the WRAT-R. The K-BIT IQ Composite correlated .73 with the K-TEA Battery Composite.

Reviewer Comments

Three main comments were given by previously reviewing authors. The use of small samples in the norming of the K-BIT was commented on by both Miller (1995) and Jirsa (1994). Miller commented that caution should be used in interpreting standard scores for older subjects (ages 20-90) due to the small sample's in the norming. Jirsa commented that since the K-BIT falls short of a reliable or representative sample of any population, caution should be used in interpreting all K-BIT scores.

Miller also comments that the K-BIT has not been validated for many of the uses listed in the manual. Some of the manual suggested uses for the K-BIT include large-scale screening to identify high-risk children, testing for job applicants to facilitate hiring

or placement decisions, and estimating the intelligence of a large number of prisoners, patients, or military recruits. However, the K-BIT has primarily been validated for use in school and university settings. Young (1995) commented that the administration of the K-BIT should be limited to professionals to limit the possibility of test misuse.

Summary Evaluation

In summary, the K-BIT is a brief intelligence test to be used for screening purposes. It measures both verbal and nonverbal ability in a Vocabulary and a Matrices section. It is simple to administer and easy to score. It can be used across a wide age span. However, due to the small sample size of the older population (ages 20 – 90) used in the norming of this test, its use with that population is questionable, and scores reported for that population should be interpreted cautiously. In addition, although the K-BIT can be used in non-educational settings, its validity for those settings has not been established.

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